

## PATENT CLAIMS

What is claimed is:

1. A method for controlling an electrical machine (5), with a control unit (1) having a configurable speed regulator (26) and/or a configurable additional regulator (28) and the electrical machine (5) being provided in order to vary a position of a movable machine part (7, 8), with the position (29) of the movable machine part (7, 8) being detected, characterized in that at least one parameter (31) of the speed regulator (26) and/or at least one parameter (33) of the additional regulator (28) are/is varied as a function of the position (29) of the movable machine part (7, 8).
2. The method as claimed in claim 1, characterized in that at least one of the following regulator types is used as the additional regulator (28):
  - position regulator
  - traction regulator
  - torque regulator
  - pilot control.
3. The method as claimed in claim 1 or 2, characterized in that a linear motor (5) is used as the electrical machine (5), with the linear motor (5) having a primary part (7) and a secondary part (8), with either the primary part (7) or the secondary part (8) being a movable machine part of the linear motor (5), and at least one parameter (31) of the speed regulator (26) and/or at least one parameter (33) of the additional regulator (28) being varied as a function of the position of the movable machine part.
4. The method as claimed in one of claims 1 to 3, characterized in that a function (35) or a table (37) is used in order to vary the parameter (31, 33).

5. The method as claimed in one of claims 1 to 4, characterized in that a reference run of the electrical machine (5) is carried out in order to determine the parameters (31, 33) which are dependent on the position of the movable machine part.
6. The method as claimed in one of claims 1 to 5, characterized in that one physical parameter which in particular is a magnetic field parameter is measured as a function of the position (29) of the machine parts (7, 8), and the parameter (31, 33) of a regulator is varied as a function of the position (29) of the machine part (7, 8) and as a function of the physical parameter.
7. An apparatus for controlling an electrical machine (5), with the control system having a configurable speed regulator (26) and a configurable additional regulator (28), and the electrical machine (5) being provided in order to vary the position of the machine part (7, 8), with the position of the machine part (7, 8) being measurable, characterized in that at least one parameter (31) of the speed regulator (26) and/or at least one parameter (33) of the additional regulator (28) can be varied as a function of the position (29) of the machine part (7, 8).
8. The apparatus as claimed in claim 6, characterized in that this apparatus is intended to carry out the method as claimed in one of claims 1 to 6.